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## Epistemological reassessment on the concept of resilience. Societal intangibles in the identity dilemma

**Prof. Iulian CHIFU, Ph.D.\***

\*"Carol I" National Defence University, Bucharest, Romania  
e-mail: [keafuyul@gmail.com](mailto:keafuyul@gmail.com)

### Abstract

Resilience is a concept borrowed from different fields of research like psychology, ecology and engineering and established in security studies. But the stability and relevance of the concept is not yet established as we have till the end of 2024, according to NATO agenda, to settle its substance and content. On the epistemological area, we need to establish the usefulness of such a concept as well as its identity and concrete added value to security studies since it overlaps with number of other concepts like security, vulnerability, good governance, sustainability and so on.

### Keywords:

resilience; epistemology; societal security; intangibles; acceptable error.

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## Five points on methodological approaches

Our qualitative study points out the components that are constituting those concrete differences in meaning, substance and content which recommend resilience to stay as a concept *per se* according to epistemological demands (Shea 2016). The identity dilemma has numerous sides and angles to address the subject, but we preferred to rely on the original sources of the concept, as well as on the definition that pushed the concept into practical relevance (Chandra *et al.*, 2011). This is the first methodological point we are focusing on, the identity of the concept. The sources for saving the concept are coming in the realm of societal security (Chifu, Nantoi and Sushko 2008) and intangibles (Chifu 2023b) as it is the case for their practical added value since those elements explain why measurable data and quantitative models do not suffice to cover the relevance of a country in war times.

It is true, however, that we need to recuperate, at the same time, the components that are explaining critical infrastructure resilience (European Commission 2023) as well as the resilience of the systems (Boon *et al.*, 2012) that act for offering constant, uninterrupted specific services to the population. Crisis management (including civil emergencies) and the content of decision making in crisis (Chifu 2019; Chifu and Ramberg 2007; Chifu and Ramberg 2008) is also a part of the specifics and added value of the resilience that need to be recuperated and included in the added value of the concept.

The second part of our study looks also into the components of institutional resilience (Aligica and Tarko 2014) and the mistakes in enforcing the concept as we are looking into the numerous models for creating indicators and grant a measurable model of institutional resilience. The separation of institutional resilience between resilience *per se* and resilience as a purpose (Gupta *et al.*, 2010) to support the continuity of services to a community or society is critical, as the opposite is ready to create monsters and give a role to authoritarian solutions. This is the second methodological approach.

Democratic resilience (Chifu 2018) as a condition, limitation and moral sense is also a must in describing institutional resilience as well as resilience *per se* in a democratic country. But here, we also have epistemological solutions that could prove the need for democratic resilience as a must on the long run, since authoritarian regimes are doomed to create imbalances, discontent and mistrust and to open the door to direct instability through challenging the rules of the system which disregards the freedom of the individuals and free choices of the society. And this is a third methodological angle, if not condition for the full debate about resilience in democratic societies.

Last but not least, a full theoretical approach on criteria versus indicators, measurable evolutions versus non-measurable ones, qualitative versus quantitative elements in the reality around us are also of first importance for the study. That's

our fourth methodological concern and approach. We all know that when a model introduces values of the indicators with values comparable with the error of the model, the result is inconclusive and, therefore, should be dropped away (Fillion and Corless 2014). And new elements of quantitative assessments should replace those inconclusive indicators and models in order to stay in an acceptable framework and limits of errors in a practical study. And that is our fifth methodological approach.

## Epistemological assessment on resilience

Resilience is a new fashionable concept over-used and threatened by irrelevance due to this excessive use, widening its coverage and understanding and dilution of its significance (Brown 2012). It has been borrowed from ecology (Adger *et al.*, 2011), psychology (Almedom 2008), and engineering, and moved into security studies. Its “vicinity” with a few other concepts and overlapping in meaning with the content of some others put at risk its scientific relevance and its identity. Resilience has become a concept widely used and extensively abused in the current literature, ready to lose its original means and fighting to find and to prove its real added value and relevance (Buikstra *et al.*, 2010).

The epistemological study on content, using multiple definitions of the concept of resilience and their relations with other neighbour concepts with overlapping means, shows that resilience is fundamentally linked to a human community/society and community resilience as an emergent property of dynamic social-ecological systems through which communities can respond positively to a range of risks, including shocks, extreme events, and other changes. Five different capacities assess how interactions between them confer resilience: place attachment, leadership, community cohesion and efficacy, community networks, and knowledge and learning. Its relevance is linked with conservation, disaster risk reduction, climate change adaptation, and community development (Folke *et al.*, 2005).

For observing the substance of the concept, we used the last practical definition of NATO Art. 61. Vilnius Summit Communiqué (NATO 2023a), which introduces the following components:

- National and collective resilience is link to societies (to safeguard our societies, our populations) and to democratic resilience as well (reference to shared values).
- It is linked to crisis and civil emergencies - preparedness against strategic shocks and disruptions.
- It aims to boost “national and collective ability to ensure”:
  - continuity of government and of essential services to our populations, and
  - enable civil support to military operations, in peace, crisis and conflict.
- It is linked to security through the vulnerability concept (strategic

vulnerabilities and dependencies).

- It is linked to critical infrastructure resilience as well as to system resilience of supply and services (supply chains and health systems).
- Societal resilience is a specific and core part of general resilience.
- It is also linked to man-made crisis, including governmental responsibility (the actions, commitments and legal obligations of individual Allies in other international bodies also contribute to enhancing our resilience).

Epistemology consecrates a concept and accepts its relevance for the scientific and academic purpose once it fulfils some core requirements (Elgin, 2019), that need to be covered by a new emerging concept:

- Clarity and clear delimitation of concept significance.
- The relevant “identity” of the concept which separates it from similar or related concepts, with overlapping significance.
- Relevance of the content that differentiate the new concept from similar ones.
- Usefulness and added value to the science and research.

The most recent concepts for defining resilience come from security – resilience is often linked to a trait or a component of the security, especially through vulnerability (Young 2010) – being resilient means also diminishing the vulnerabilities of a community/society. But resilience is not just that, since a resilient society can function also without diminishing its vulnerabilities and resilience is not only about vulnerabilities, but also about facing shocks and crises, adapting and preventing them, anticipating and even changing the reality of the future in order to access the most favourable scenario and get away from the worst case on.

On another point, linked to system resilience and institutional resilience, the concept tends to overlap and confound with good governance (Holling and Gunderson 2002; Ostrom 1990; Paavola 2007; Helmke and Levitsky 2004). Sustainability is another concept linked to the origins of the resilience in environmental studies, ecology, as resistance could be another term linked to critical infrastructure and engineering (NATO 2022a). So, the relevance of the term should be underlined when making the needed nuances and clear determination in relations with all those related concepts.

The overall concept analysis that we have done in the numerous means of the concepts and definitions found in the scientific literature show the following elements as defintory for the concept:

- First, it is individual centric and takes the societal perspective. In particular, the final goal of resilience is a functional societal and individual well-being, and the main contributors to resilience are individuals, with all of their interactions, social ties and power structures.
- Second, it takes a dynamic perspective. Shocks can differ in their chronicity and intensity, which influences the relative importance of stability versus flexibility (the absorptive, adaptive and transformative capacities).

Moreover, during the dynamic response to shocks, it might happen that there is a change in the most relevant capacity, in the most affected entities, or both at the same time.

- Third, it emphasizes interactions, feedback and possible nonlinearities among various entities and layers of the system. This “system view” helps understanding how shocks spread among the different segments of the system, how they interact with each other and with the actors, and based on all these, where to intervene.
- Fourth, interventions may contribute actively to the resilience of the overall system, by enhancing the entities’ own abilities to cope with disturbances. This could mean helping entities to invoke the necessary capacities (e.g. incentivizing people to accumulate savings to cope with a potential job loss) or support these capacities directly (e.g. unemployment benefits). Interventions may need to vary with individuals and change in time.
- Fifth, a crucial aspect is to be able to “bounce forward” (instead of “bouncing back”), to learn from past difficulties, and come out stronger from a witnessed storm. This means being able to use shocks as windows of opportunities, and thus translate the negative narrative of a “stormy future” into a positive one (crisis as threats and opportunities) ([Manca, Benczur and Giovannini 2017](#)).

Societal resilience ([NATO 2022b](#); [Chifu 2018](#)) has proven its added value to the concept coming from practical questions and evolutions: during Russia’s war of aggression in Ukraine, being the one that explains the concrete results ([Chifu and Simons 2023](#)) when one side has all figures on its side – manpower, capabilities, weapons and ammunition storages, ideological post-imperial upper hand – but did not succeed in winning the war ([Chifu 2021](#); [Chifu 2022](#)). Intangibles ([Chifu and Simons 2023](#)) and concrete elements that forge societal security are those making the difference, with a very thorough attention to those linked to societal security for avoiding the overlapping of those concepts. How those elements of societal resilience mix with other valid significances – like the resilience of critical infrastructure or of systems that deliver specific services to the communities – will offer the clear content and identity of the resilience is to be determined. If not, we will be facing a composite concept which includes all those elements of previously existent concepts and its value could be disputable if not really questionable.

### **Institutional resilience: common errors. Democratic resilience**

Institutional resilience is both a by-product of system resilience and societal resilience, since institutions grant services to the community. But the problem with institutional resilience is to confirm two elements:

- It is not about resilience *per se*, for the sake of the survival of the institution, government or political power, but about the resilience of the community, society or nation for which the institution is granting services. Putting the

individual, citizen, taxpayer and voter, as well as the community, society and nation in the core of the concept (for whom is resilience?) is critical. Institutions are made through law by societies in order to fulfil a certain task, a certain objective, a service to the society and individuals, and could be transformed, reformed, dissolved or merged and the service could be taken away and fulfilled in a different administrative form for efficiency and effectiveness reasons. Institutions, governments, majorities, regimes are not subject to the concept of resilience ([Gupta et al., 2010](#)).

- It is clearly and definitely linked to democratic resilience, on two accounts: first, because we are living in democratic societies and the norms, values and principles are at the core of our societies, so they should be defended, even though this could introduce limits to the means to achieve resilience; and second, because resilience is, on the long run, destined to be convergent with democratic resilience, since an autocratic society could be resilient and effective only on the short term, but on the mid to long term, divergences, misunderstandings and tensions are accumulating and they could not be diffused without proper communication, transparency, legitimacy of the executive acts, freedom of speech, freedom of public manifestations, of competitive, free and fair elections.

NATO Strategic Concept Madrid 2022 ([NATO 2022c](#)) has several references to resilience and they also refer to democratic resilience.

- First, resilience is about democracy, societies and democratic values – “ensuring our national and collective resilience is critical to all our core tasks and underpins our efforts to safeguard our nations, societies and shared values”.
- Second, it counter-poses democracies and authoritarian regimes, underlying threats to democracy and the need to safeguard it through resilience means (even though here it is a little too much overlapping with the security content – “Authoritarian actors challenge our interests, values and democratic way of life. They are investing in sophisticated conventional, nuclear and missile capabilities, with little transparency or regard for international norms and commitments. Strategic competitors test our resilience and seek to exploit the openness, interconnectedness and digitalisation of our nations. They interfere in our democratic processes and institutions and target the security of our citizens through hybrid tactics, both directly and through proxies”.
- Third, besides the attacks on democracy, it is an attack to the rules based order, so to the international system of laws and regulations, the democratic format of the world order – “They conduct malicious activities in cyberspace and space, promote disinformation campaigns, instrumentalise migration, manipulate energy supplies and employ economic coercion ([NATO 2023b](#)). These actors are also at the forefront of a deliberate effort to undermine multilateral norms and institutions and promote authoritarian models of governance”.

The EU Strategic Compass ([European Council 2022](#)) has also clear references to the fact that resilience is convergent or contains the democratic resilience:

- First, it links resilience to hybrid threats – another important convergence to security that needs to be dealt with. Hybrid threats, cyber-attacks, manipulation of information and foreign interferences in electrons are the key threats that are countered by raising societal and national resilience (that includes institutional resilience).
- Second, societal and economic resilience (North 1990), critical infrastructure protection as well as the protection of our democracies at the national and EU level are tasks linked to resilience, according to the document.
- Third, fighting information warfare through access to credible information, free and independent mass media are also a part of resilience coming from the need to protect democratic resilience (European Commission 2020).

### **System resilience and critical infrastructure – resistance versus resilience. What makes sense?**

Another important part of the epistemological debate regarding resilience is the one separating resistance and resilience – related first and foremost to the source of the concept borrowed from engineering. Nuances are very important since the concept of resilience contains the significance of resistance but also has numerous other components. It is like the comparing of Nassim Taleb's opposites to fragility (Taleb 2014): resistance should be the equivalent of robustness, and resilience should be closer to anti-fragile.

Once again, Taleb underlines the fact that institutional resilience is not about the institution *per se*, to be robust and survive in the original form or shape in the constitutional and legal system, but it is about the capacity of the system and critical infrastructure to grant the continuity of the services it delivers to the population and the fulfilment of the tasks attributed in a direct form – institutional continuity – or in a different administrative form. It is also about the definition of the institution in terms of legal framework, procedures, and functionality rather than about walls, positions, political power enshrined into such institutions.

Moreover, another useful reference is that of the liquid society of Zygmunt Baumann (2000). In that case, the perspective is that institutions are no longer walls, buildings, paper, physical instruments, and tools, but functionality, responses, actions, and services fulfilled. A concrete example of that reality could be the functionality of the systems during pandemic: the services and continuity of the government was not linked to a day-by-day reunion of individuals to workplaces, but to the adaptation to a health urgency that let individuals act by themselves from home or from any place where they are. It is sure that there are some limits here since some services require going to concrete places and using physical instruments. But the idea of continuity of services and adaptability is very clearly reflected here as in Baumann's book.



## Criteria versus indicators: the qualitative approach to societal security and intangibles

In terms of intangibles (Chifu 2023b) and elements of societal security, one could clearly approach the concept of resilience from the part related to policies useful for the purpose of enforcing it (Berkes and Ross 2013). And here measuring progress and the effectiveness of the policies are very often transferred to models of indicators. But not all the realities are measurable. Not everything could be translated into indicators. On the contrary, the absolute majority of evolutions in reality are not measurable. Therefore, we tend to use models in these cases.

But models are not a panacea. Accessing and building models to measure realities help our cartesian minds, are very important and valid scientific grounds for assessing the level of resilience, for instance, in a particular field. But each model has an error, which comes from the estimation and approximation of reality. And when the error of a model is comparable to the value of an indicator or another, this cannot be relevant anymore. It is an unacceptable error.

Resilience is also the probability of ensuring the task, objectives, and services during and after a crisis, civil emergency, or disruptive event. Immaterial factors, non-measurable evolutions, and events as well as the intangibles (Chifu and Simons 2023) that could enforce and multiply the level of resilience are of first importance and could not be measured. How can we assess the progress or evolution of resilience?

With this we are arriving at the difference between criteria and indicators (Berg 2014). Indicators are the measurable ones, easy to frame and to compare, even though there could still be a dispute about their relevance to resilience. But there are also qualitative ways of approaching the evaluation of resilience, through criteria to be fulfilled. In this case, qualitative indicators, criteria, achieving concrete tasks are the only able to show us progress or regress, evolutions, or improvements in forging resilience (Bloor *et al.*, 2011). Societal security and the intangibles are the most frequent to need those qualitative frameworks to assess enforcement of resilience.

As an example, how could you measure the capacity of sacrifice? The capacity of supporting a war effort and absorbing the costs of a long-term war? The acceptability of the spendings and costs in war times, the power to endure suffering and pain for losing loved ones in a war? Intangible war characteristics are defining, as we have seen in Russia's war of aggression against Ukraine, the one that gets a victory in a concrete clash. Despite the measurable indicators that show a different perspective. They include, the will to fight, determination, resolution, capacity of sacrifice, survival in harsh environments, for sure reputation, credibility, brand, leadership, compassion, moral, cohesion, unity, level of preparedness and experience, consciousness and support of the public opinion (Chifu 2023a). And some more.



Any model prepared to measure those intangibles has proven unacceptable due to enormous errors. Even the models involving perceptions of different experts, people, polls and so on are not real indicators of those evolutions and are doomed to fail. That is why we call them intangibles. And that is why we need to replace the quantitative indicators with qualitative ones coming from criteria and concrete tasks to be fulfilled by the system in order to reach the expected level of effectiveness.

## Conclusions

The concept of resilience is far from being stabilized and to have fulfilled the epistemological requirements for making its way into the scientific and academic field. There are parts of that content, especially linked to societal resilience and intangibles that are recommending it. But there is still an important part of the journey to be concluded in order to integrate the other components of critical infrastructure resilience, system resilience, democratic resilience as well as crisis management, decision making and confronting disruptive events in order to achieve the endgame of consecrating resilience as a clear and full fledge concept.

## References

- Adger, W.N., K. Brown, D.R. Nelson, F. Berkes, H. Eakin, C. Folke, K. Galvin et al.** 2011. "Resilience implications of policy responses to climate change." *Wiley Interdisciplinary Reviews: Climate Change* 2 (5): 757–766. <http://dx.doi.org/10.1002/wcc.133>
- Aligica, P.D. and V. Tarko.** 2014. "Institutional Resilience and Economic Systems: Lessons from Elinor Ostrom's Work." *Comp Econ Stud* 56: 52-76. <https://link.springer.com/article/10.1057/ces.2013.29>
- Almedom, A.M.** 2008. "Resilience research and policy/practice discourse in health, social, behavioral, and environmental sciences over the last ten years." *African Health Sciences* 8 (Special issue): S5–S13. <https://pubmed.ncbi.nlm.nih.gov/21448375/>
- Bauman, Zygmunt.** 2000. *Liquid Modernity*. 1st edition. Malden: Polity Press.
- Berg, B.L.** 2014. *Qualitative research methods for the social sciences*. Eighth edition. Harlow, UK: Pearson Education Ltd.
- Berkes, F. and H. Ross.** 2013. "Community resilience: toward an integrated approach." *Society and Natural Resources* 26 (1): 5-20. <http://dx.doi.org/10.1080/08941920.2012.736605>
- Bloor, M., J. Frankland, M. Thomas and K. Robson.** 2011. *Focus groups in social research*. SAGE Publications Ltd. <http://dx.doi.org/10.4135/9781849209175>
- Boon, Helen J., Alison Cottrell, David King, Robert B. Stevenson and Joanne Millar.** 2012. "Bronfenbrenner's bioecological theory for modelling community resilience to natural disasters." *Nat Hazards* 60 (2): 381–408. <https://doi.org/10.1007/s11069-011-0021-4>

- Brown, Katrina.** 2012. "Policy discourses of resilience." În *Climate change and the crisis of capitalism*, editor M. Pelling, D. Manuel-Navarrete and M. Redclift. Abingdon, UK: Routledge.
- Buikstra, E., H. Ross, C.A. King, P.G. Baker, D. Hegney, K. Mclachlan and C. Rogers-Clark.** 2010. "The components of resilience: perceptions of an Australian rural community." *Journal of Community Psychology* 38 (8): 975–991. <http://dx.doi.org/10.1002/jcop.2040>
- Chandra, Anita, Joie Acosta, Stefanie Stern, Lori Uscher-Pines, Malcolm V. Williams, Douglas Yeung, Jeffrey Garnett and Lisa S. Meredith.** 2011. "Chapter two: Definition and Application of Community Resilience." in *Building Community Resilience to Disasters: A Way Forward to Enhance National Health Security*. - [https://www.jstor.org/stable/10.7249/tr915dhhs.10?searchText=resilience&searchUri=%2Faction%2FdoBasicSearch%3FQuery%3Dresilience%26typeAccessWorkflow%3Dlogin&ab\\_segments=0%2Fbasic\\_search\\_gsv%2Fcontrol&refreqid=fastly-default%3A74ab0e72322c80f83b27d208ff1dafb9&typeAccessWorkflow=login&seq=3](https://www.jstor.org/stable/10.7249/tr915dhhs.10?searchText=resilience&searchUri=%2Faction%2FdoBasicSearch%3FQuery%3Dresilience%26typeAccessWorkflow%3Dlogin&ab_segments=0%2Fbasic_search_gsv%2Fcontrol&refreqid=fastly-default%3A74ab0e72322c80f83b27d208ff1dafb9&typeAccessWorkflow=login&seq=3)
- Chifu, Iulian.** 2018. „Războiul hibrid și reziliența societală. Planificarea apărării hibride.” *Revista Infoșfera* (1): 23-30.
- . 2019. *Decizia în Criză*. București: Editura RAO.
- . 2021. „Reziliență strategică: de la stabilitate și prevenție la acțiune pro-activă și adaptabilitate dinamică.” *Gândirea Militară* (1): 10-21.
- . 2022. „Lecțiile conflictului din Ucraina și perspectiva rezilienței societale.” *Revista Infoșfera* (2): 5-13.
- . 2023a. „Amenințarea reală a războiului de agresiune, de lungă durată, pe scară largă în Europa”. <https://adevarul.ro/blogurile-adevarul/amenintarea-reala-a-razboiului-de-agresiune-de-2292769.html>
- . 2023b. „Reziliența în război și caracteristicile intangibile. Cazul războiului de agresiune al Rusiei în Ucraina.” *Revista Infoșfera* (3): 13-21.
- Chifu, Iulian, Oazu Nantoi and Oleksandr Sushko.** 2008. *Securitate societală în regiunea trilateralei România-Ucraina-Republica Moldova/Societal Security in the trilateral Region Romania-Ukraine-Republic of Moldova*. Ediție bilingvă. București: Editura Curtea Veche.
- Chifu, Iulian and Britta Ramberg.** 2007. *Crisis management in Transitional Societies*. Stockholm: Editura CRISMART SNDC.
- . 2008. *Managementul crizelor în societățile în tranziție. Cazul României*. București: Editura RAO.
- Chifu, Iulian and Greg Simons.** 2023. *Rethinking warfare in the 21-st Century. The influence and effects of the Politics, Information and Communication Mix*. Cambridge: Cambridge University Press.
- Elgin, Samuel.** 2019. "The Epistemology of Identity." <https://philarchive.org/rec/ELGTEO>
- European Commission.** 2020. "Strategic Foresight Report – Charting the course towards a more resilient Europe." [https://commission.europa.eu/system/files/2021-04/strategic\\_foresight\\_report\\_2020\\_1\\_0.pdf](https://commission.europa.eu/system/files/2021-04/strategic_foresight_report_2020_1_0.pdf)

- . 2023. "EU-NATO Task Force on the Resilience of Critical Infrastructure." [https://commission.europa.eu/system/files/2023-06/EU-NATO\\_Final%20Assessment%20Report%20Digital.pdf](https://commission.europa.eu/system/files/2023-06/EU-NATO_Final%20Assessment%20Report%20Digital.pdf)
- European Council.** 2022. „O Busolă strategică pentru securitate și apărare – Pentru o Uniune Europeană care își protejează cetățenii, valorile și interesele și contribuie la pacea și securitatea internațională.” <https://data.consilium.europa.eu/doc/document/ST-7371-2022-INIT/ro/pdf>
- Fillion, Nicolas and Robert M. Corless.** 2014. "On the epistemological analysis of modeling and computational error in the mathematical sciences." *Synthese* 191 (7): 1451-1467.
- Folke, Carl, Thomas Hahn, Per Olsson and Jon Norberg.** 2005. "Adaptive governance of social-ecological systems." *Annual Review of Environment and Resources* 30: 441-473. <http://dx.doi.org/10.1146/annurev.energy.30.050504.144511>
- Gupta, Joyeeta, Catrien Termeer, Judith Klostermann, Sander Meijerink, Margo van den Brink, Pieter Jong, Sibout Nooteboom and Emmy Bergsma.** 2010. "The Adaptive Capacity Wheel: a method to assess the inherent characteristics of institutions to enable the adaptive capacity of society." *Environmental Science & Policy* 13 (6): 459-471. <http://dx.doi.org/10.1016/j.envsci.2010.05.006>
- Helmke, G. and S. Levitsky.** 2004. "Informal institutions and comparative politics: a research agenda." *Perspectives on Politics* 2 (4): 725-740. <http://dx.doi.org/10.1017/S1537592704040472>
- Holling, C.S. and L.H. Gunderson.** 2002. "Resilience and adaptive cycles." În *Panarchy Understanding Transformations in Human and Natural Systems*, editor L. H. Gunderson și C. S. Holling. Washington, DC: Island Press.
- Manca, A.R., P. Benczur and E. Giovannini.** 2017. *Building a Scientific Narrative Towards a More Resilient EU Society*. EUR 28548 EN, Luxembourg: Publications Office of the European Union. [doi:10.2760/635528](https://doi.org/10.2760/635528).
- NATO.** 2022a. *Preparing for the Future: NATO 2030*. [https://www.nato.int/nato\\_static\\_fl2014/assets/pdf/2022/3/pdf/sgar21-en.pdf#page=15](https://www.nato.int/nato_static_fl2014/assets/pdf/2022/3/pdf/sgar21-en.pdf#page=15)
- . 2022b. "Secretary General Annual Report 2021." [https://www.nato.int/cps/en/natohq/opinions\\_193590.htm?selectedLocale=en](https://www.nato.int/cps/en/natohq/opinions_193590.htm?selectedLocale=en)
- . 2022c. *NATO 2022 Strategic Concept*. [https://www.nato.int/cps/en/natohq/topics\\_210907.htm](https://www.nato.int/cps/en/natohq/topics_210907.htm)
- . 2023a. *Vilnius Summit Communiqué*. [https://www.nato.int/cps/en/natohq/official\\_texts\\_217320.htm](https://www.nato.int/cps/en/natohq/official_texts_217320.htm)
- . 2023b. *Resilience, civil preparedness and Article 3*. [https://www.nato.int/cps/en/natohq/topics\\_132722.htm](https://www.nato.int/cps/en/natohq/topics_132722.htm)
- North, D.C.** 1990. *Institutions, institutional change and economic performance*. Cambridge: Cambridge University Press.
- Ostrom, E.** 1990. *Governing the commons: the evolution of institutions for collective action*. Cambridge, UK: Cambridge University Press.
- Paavola, Jouni.** 2007. "Institutions and environmental governance: A reconceptualization." *Ecological Economics* 63 (1): 93-103. <https://doi.org/10.1016/j.ecolecon.2006.09.026>

**Shea, Jamie.** 2016. "Resilience, a core element of collective defense." <https://www.nato.int/docu/review/articles/2016/03/30/resilience-a-core-element-of-collective-defence/index.html>

**Taleb, Nassim Nicholas.** 2014. *Antifragil*. București: Editura Curtea Veche.

**Young, O.R.** 2010. "Institutional dynamics: resilience, vulnerability and adaptation in environmental and resource regimes." *Global Environmental Change* 20 (3): 378–385. <https://doi.org/10.1016/j.gloenvcha.2009.10.001>